

CLAIMS

1. A method of compressing an image block (600) comprising multiple image elements (610), said method comprising the steps of:
 - determining a color codeword (710) that is a representation of the colors of said multiple image elements (610);
 - determining an alpha codeword (720) that is a representation of the alpha values of said multiple image elements (610);
 - providing an alpha modifying codeword (730) that is a representation of a set of multiple alpha modifiers for modifying an alpha value generated based on said alpha codeword (720); and
 - selecting, for each image element (610) in said image block (600), an alpha modifier index associated with an alpha modifier from said alpha modifier set.
2. The method according to claim 1, further comprising the steps of:
 - providing a color modifying codeword (750) that is a representation of a set of multiple color modifiers for modifying a color generated based on said color codeword (710); and
 - selecting, for each image element (610) in said image block (600), a color modifier index associated with a color modifier from said color modifier set.
3. The method according to claim 2, wherein said color modifying codeword providing step comprises selecting said color modifier set from a color table (600) comprising multiple color modifier sets, whereby said color modifying codeword (750) enables identification of said selected color modifier set from said color table (600).
4. The method according to any of the claims 1 to 3, wherein said color codeword determining step comprises the steps of:
 - determining a first color subcodeword (710A) that is a representation of the colors of at least a first portion of said multiple image elements (610); and

- determining a second color subcodeword (710B) that is a representation of the colors of at least a second portion of said multiple image elements (610), said method further comprising the step of:

- selecting, for each image element (610) in at least a subset of said multiple image elements (610), a color index associated with said first color subcodeword (710A) or said second color subcodeword (710B).

5. The method according to claim 4, wherein a sequence (770) of said color indices comprises, for each image element (610) in a first subset of said multiple image elements (610), a color index associated with said first (710A) or second (710B) color subcodeword, each image element (610) in a second remaining subset of said multiple image elements (610) is associated with a pre-defined color subcodeword selected from said first (710A) or second (710B) color subcodeword.

6. The method according to any of the claims 1 to 5, wherein said alpha modifying codeword providing step comprises selecting said alpha modifier set from an alpha table (500) comprising multiple alpha modifier sets, whereby said alpha modifying codeword (730) enables identification of said selected alpha modifier set from said alpha table (500).

7. A method of encoding an image, said method comprising the steps of:

- decomposing said image into multiple image blocks (600), each image block (600) comprising multiple image elements (610); and

- determining, for at least one image block (600), a compressed image block representation (700) by compressing said at least one image block (600) according to any of the claims 1 to 6.

8. A method of processing a compressed representation (700) of an image block (600) comprising multiple image elements (610), said compressed representation (700) comprises a color codeword (710), an alpha codeword (720), an alpha modifying codeword (730) and an alpha modifier index sequence (740), and said method comprising the steps of:

- providing a set of multiple alpha modifiers based on said alpha modifying codeword (730);

for at least one image element (610) in said image block (600):

- generating a color representation based on said color codeword (710);

- generating an alpha representation based on said alpha codeword (720);

- selecting an alpha modifier from said alpha modifier set based on said alpha modifier index sequence (740); and

- modifying said alpha representation based on said selected alpha modifier.

9. The method according to claim 8, wherein said compressed image block representation (700) further comprises a color modifying codeword (750) and a color modifier index sequence (760), said method comprises the further steps of:

- providing a set of multiple color modifiers based on said color modifying codeword (750);

- selecting a color modifier from said color modifier set based on said color modifier index sequence (760); and

- modifying said color representation based on said selected color modifier.

10. The method according to claim 9, wherein said step of providing said color modifier set comprises selecting, based on said color modifying codeword (750), said color modifier set from a color table (600) comprising multiple color modifier sets.

11. The method according to any of the claims 7 to 10, wherein said color codeword (710) comprises a first color subcodeword (710A) and a second color subcodeword (710B) and said compressed image block representation (700) further comprises a color index sequence (770), and said color representation generating step comprises the step of:

generating said color representation based on at least one color subcodeword selected from said first (710A) and second (710B) color subcodeword.

12. The method according to claim 11, wherein said color index sequence (770) comprises, for each image element (610) in a first subset of said multiple image elements (610), a color index associated with said first (710A) or second (710B) color subcodeword, each image element (610) in a second remaining subset of said multiple image elements (610) is associated with a pre-defined color subcodeword selected from said first (710A) or second (710B) color subcodeword.

13. The method according to any of the claims 8 to 12, wherein said step of providing said alpha modifier set comprises selecting, based on said alpha modifying codeword (730), said alpha modifier set from an alpha table (500) comprising multiple alpha modifier sets.

14. A method of decoding an encoded image that comprises compressed representations (700) of image blocks (600) comprising multiple image elements (610), a compressed image block representation (700) comprises a color codeword (710), an alpha codeword (720), an alpha modifying codeword (730) and an alpha modifier index sequence (740), and said method comprises the steps of:

- determining, for at least one compressed image block representation (700), at least one decompressed image element representation (610) by processing said at least one compressed image block representation (700) according to any of the claims 8 to 13; and

- generating an image by processing said at least one decompressed image element representation (610).

15. A system (300) for compressing an image block (600) comprising multiple image elements (610), said system (300) comprising:

- a color quantizer (310) for determining a color codeword (710) that is a representation of the colors of said multiple image elements (610);
- an alpha quantizer (320) for determining an alpha codeword (720) that is a representation of the alpha values of said multiple image elements (610);
- means (330) for providing an alpha modifying codeword (730) that is a representation of a set of multiple alpha modifiers for modifying an alpha value generated based on said alpha codeword (720); and
- an index selector (340) for selecting, for each image element (610) in said image block (600), an alpha modifier index associated with an alpha modifier from said alpha modifier set.

16. The system according to claim 15, further comprising:

- means (360) for providing a color modifying codeword (750) that is a representation of a set of multiple color modifiers for modifying a color generated based on said color codeword (710), wherein said index selector (340) is configured for selecting, for each image element (610) in said image block (600), a color modifier index associated with a color modifier from said color modifier set.

17. The system according to claim 16, wherein said color modifying codeword providing means (360) is configured for selecting said color modifier set from a color table (600) comprising multiple color modifier sets, whereby said color modifying codeword (750) enables identification of said selected color modifier set from said color table (600).

18. The system according to any of the any of the claims 15 to 17, wherein said color quantizer (310) is configured for determining a first color subcodeword (710A) that is a representation of the colors of at least a first portion of said multiple image elements (610) and a second color subcodeword (710B) that is a representation of the colors of at least a second portion of said multiple image elements (610), and said index selector (340) is configured for selecting, for each image element (610) in at least a subset of said multiple

image elements (610), a color index associated with said first color subcodeword (710A) or said second color subcodeword (710B).

19. The system according to claim 18, wherein a sequence (770) of said color indices comprises, for each image element (610) in a first subset of said multiple image elements (610), a color index associated with said first (710A) or second (710B) color subcodeword, each image element (610) in a second remaining subset of said multiple image elements (610) is associated with a pre-defined color subcodeword selected from said first (710A) or second (710B) color subcodeword.

20. The system according to any of the claims 15 to 19, wherein alpha modifying codeword providing means (330) is configured for selecting said alpha modifier set from an alpha table (500) comprising multiple alpha modifier sets, whereby said alpha modifying codeword (730) enables identification of said selected alpha modifier set from said alpha table (500).

21. An image encoding system (210) comprising:

- an image decomposing (215) for decomposing an image into multiple image blocks (600), each image block (600) comprising multiple image elements (610); and
- at least one image block compressing system (300) according to any of the claims 15 to 20.

22. A system (400) for processing a compressed representation (700) of an image block (600) comprising multiple image elements (610), said compressed representation (700) comprises a color codeword (710), an alpha codeword (720), an alpha modifying codeword (730) and an alpha modifier index sequence (740), and said system (400) comprises:

- means (430) for providing a set of multiple alpha modifiers based on said alpha modifying codeword (730);

- a color generator (410) for generating a color representation for at least one image element (610) in said image block (600) based on said color codeword (710);
- an alpha generator (420) for generating an alpha value for said at least one image element based on said alpha codeword (720);
- a selector (440) for selecting, for said at least one image element (610), an alpha modifier from said identified alpha modifier set based on said alpha modifier index sequence (740); and
- an alpha modifier (450) for modifying said alpha value based on said selected alpha modifier.

23. The system according to claim 22, wherein said compressed image block representation (700) further comprises a color modifying codeword (750) and a color modifier index sequence (760), said system (400) further comprises:

- means (460) for providing a set of multiple color modifiers based on said color modifying codeword (750); and
- color modifier (470) for modifying said color representation based on a color modifier selected by said selector (440) from said color modifier set using said color modifier index sequence (760).

24. The system according to claim 23, wherein said color modifier set providing means (460) is configured selecting, based on said color modifying codeword (750), said color modifier set from a color table (600) comprising multiple color modifier sets.

25. The system according to any of the claims 22 to 24, wherein said color codeword (710) comprises a first color subcodeword (710A) and a second color subcodeword (710B) and said compressed image block representation (700) further comprises a color index sequence (770), and said color generator (410) is configured for generating said color representation based on at least one color subcodeword selected by said selector (440) from said first (710A) and second (710B) color subcodeword.

26. The system according to claim 25, wherein said color index sequence (770) comprises, for each image element (610) in a first subset of said multiple image elements (610), a color index associated with said first (710A) or second (710B) color subcodeword, each image element (610) in a second remaining subset of said multiple image elements (610) is associated with a pre-defined color subcodeword selected from said first (710A) or second (710B) color subcodeword.

27. The system according to any of the claims 22 to 26, wherein said alpha modifier set providing means (430) is configured for selecting, based on said alpha modifying codeword (720), said alpha modifier set from an alpha table (500) comprising multiple alpha modifier sets.

28. A system (220) for decoding an encoded image that comprises compressed representations (700) of image blocks (600), each image block (600) comprises multiple image elements (610), a compressed image block representation (700) comprises a color codeword (710), an alpha codeword (720), an alpha modifying codeword (730) and an alpha modifier index sequence (740), said system (220) comprises:

- at least one system (400) according to any of the claims 22 to 27 for determining, for at least one compressed image block representation (700), at least one decompressed image element representation (610); and

- means (224) for processing said at least one decompressed image element representation (610) in order to generate an image.

29. An image processing terminal (100) comprising a system (210; 220; 300; 400) according to any of the claims 15 to 28.

30. A signal representation (700) of an image block (600) comprising multiple image elements (610), said signal representation (700) comprises:

- a color codeword (710) that is a representation of the colors of said multiple image elements (610);

- an alpha codeword (720) that is a representation of the alpha values of said multiple image elements (610);
- an alpha modifying codeword (730) that is a representation of a set of multiple alpha modifiers for modifying an alpha value generated based on said alpha codeword (720); and
- a sequence (740) of alpha indices, where an alpha modifier index is associated, for a image element (610) in said image block (600), with an alpha modifier from said alpha modifier set.